

REMARKS

Prior to entry of this amendment, claims 1-40 are currently pending in the subject application. Claims 1, 12, and 30 are independent.

A. Introduction

In the outstanding Office action,

- 1) the drawings were objected to as Figs. 1-3 require a descriptive legend;
- 2) the drawings were objected to under 37 C.F.R. § 1.84(p)(4) as they do not include the reference signs mentioned in the description;
- 3) claims 1-40 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite;
- 4) claims 30, 31, 33, and 34 were rejected under 35 U.S.C. § 103(a) as being unpatentable U.S. Patent No. 7,009,652 to Tanida et al. ("the Tanida et al. reference") in view of U.S. Patent No. 5,355,222 to Heller et al. ("the Heller et al. reference");
- 5) claim 32 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the Tanida et al. reference in view of the Heller et al. reference, and further in view of Examiner's Official Notice;
- 6) claims 1-4, 6, 9-13, 15-19, 21-29, 36, 37, 39, and 40 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Tanida et al. reference in view of U.S. Patent No. 7,003,177 to Mendlovic et al. ("the Mendlovic et al. reference"), and further in view of the Heller et al. reference;
- 7) claim 5 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the Tanida et al. reference in view of the Mendlovic et al. reference in view of the Heller et al. reference, and further in view of U.S. Patent No. 6,366,319 to Bills ("the Bills reference");
- 8) claims 7 and 14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Tanida et al. reference in view of the Mendlovic et al. reference in view of the Heller et al. reference, and further in view of U.S. Patent No. 6,137,535 to Meyers ("the Meyers reference"); and
- 9) claims 8, 20, 35, and 38 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Tanida et al. reference in view of the Mendlovic et al. reference in view of the Heller et al. reference, and further in view of Examiner's Official Notice.

B. Objection to the Drawings

In the outstanding Office action, the drawings were objected to as Figs. 1-3 require a descriptive legend and the drawings were objected to under 37 C.F.R. § 1.84(p)(4) as they do not include the reference signs mentioned in the description.

Replacement drawing figures for FIGS. 1 to 3 are also attached herewith. As these figures are schematic representations, but not block diagrams, descriptive text has been added to parallel the corresponding description in the original specification, as required by the Office action. Further, in the replacement drawing for FIG. 1, a processor 30 receiving outputs from the detector plane 16 is shown, as disclosed, for example, in original paragraph [0022] and [0027]. No new matter has been added.

In view of the replacement sheets, reconsideration and withdrawal of the objections to the drawings is requested.

C. Asserted Indefiniteness Rejections of Claims 1-40

In the outstanding Office action, claims 1-40 were rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Independent claims 1, 12, and 30 have been amended to clarify that the plurality of detector for each lens outputs the image multiplied by a selected transform matrix. See, e.g., original paragraph [0031]. Therefore, it is respectfully requested that this rejection be withdrawn.

D. Asserted Obviousness Rejection of Claims 30, 31, 33 and 34

In the outstanding Office Action Made Final, claims 30, 31, 33 and 34 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Tanida et al. reference in view of the Heller et al. reference. This rejection is respectfully traversed for at least the reasons set forth below.

Claim 30 recites, in part, “each image blocking portion being smaller than a detector,” “the plurality of multiple image blocking portions being between the lens and the plurality of detectors,” and that “an output of the plurality of detectors for each lens together representing an input image multiplied by a selected transform matrix.”

The Office action notes that the Tanida et al. reference fails to teach image blocking portion being smaller than a detector, and relies on the Heller et al. reference as teaching that

the pixels are sub-pixels.¹ The Applicant respectfully disagrees for at least the reasons set forth below.

1. References not properly combinable

It is submitted that these references are not properly combinable. The Tanida et al. reference is directed to an imaging apparatus, while the Heller et al. reference is directed to an optical position detecting device, i.e., the Heller et al. reference does not image anything, but merely detects presence or absence of light output from an optical transmitter attached to a moving object. The reasons for combining provided in the Office action regarding detection set forth in the Heller et al. reference would not apply to the imaging system as in the Tanida et al. reference. One of skill in the art would not be motivated to combine teachings regarding such optical position detecting devices with imaging systems.

2. All elements not disclosed

Even assuming, *arguendo*, that the references may be combined, the combination still fails to suggest, much less disclose, all of the limitations of claim 30. First, the Heller et al. reference discloses that apertures may be used to replace lenses in order to overcome complexity and accuracy issues associated with using lenses.² Second, the apertures in the Heller reference are in the aperture plane so that the field of view is limited for the corresponding sensor, i.e., each aperture corresponds to a single sensor in the Heller et al. reference. Therefore, the combination of the Heller et al. reference and the Tanida et al. reference would replace the lenses of the Tanida et al. reference with the apertures of the Heller et al. reference.

Third, as the aperture plane in the Tanida et al. reference is the lens plane³, even if the apertures of the Heller et al. reference were used with the lenses in the Tanida et al. reference, at most, one aperture would be placed on each lens, i.e., not between the lenses and the detectors. Finally, such an arrangement would result in the aperture, and thus lens, being associated either with a single sensor or the aperture, and thus lens, being associated with the plurality of detectors, which would not provide sub-pixel resolution. Neither scenario would

¹ Office action mailed July 15, 2010, page 5, last paragraph.

² The Heller et al. reference, col. 1, line 66 to col. 2, line 2.

³ The Tanida et al. reference, FIGS. 1 and 2.

provide an image output by the plurality of detectors for that lens being multiplied by a transform matrix.

Therefore, it is submitted that neither the Tanida et al. reference nor the Heller et al. reference, either alone or in combination, suggest, much less disclose, all of the limitations recited in claim 30.

The remaining rejected claims depend from claim 30, and are similarly believed to be allowable for at least the reasons set forth above. Therefore, it is respectfully requested that this rejection be withdrawn.

E. Asserted Obviousness Rejection of Claim 32

In the outstanding Office Action, claim 32 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the Tanida et al. reference in view of the Heller et al. reference, and further in view of Examiner's Official Notice. Claim 32 depends from claim 30, and is believed to be allowable for at least the reasons set forth above in Section D.

F. Asserted Obviousness Rejection of Claims 1-4, 6, 9-13, 15-19, 21-29, 36, 37, 39, and 40

In the outstanding Office Action, claims 1-4, 6, 9-13, 15-19, 21-29, 36, 37, 39, and 40 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Tanida et al. reference in view of the Mendlovic et al. reference, and further in view of the Heller et al. reference. Independent claims 1 and 12 contain limitations parallel to those of claim 30, and, even assuming the combination of references is proper, which is not conceded, the Mendlovic et al. reference fails to provide the teachings noted above as missing from the combination of the Tanida et al. and Heller et al. references. The remaining rejected claims depend, either directly or indirectly, from respective ones of claims 1 and 12. Therefore, these claims are similarly believed to be allowable for at least the reasons set forth above in Section D. It is requested that this rejection be withdrawn.

G. Asserted Obviousness Rejection of Claim 5

In the outstanding Office Action Made Final, claim 5 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the Tanida et al. reference in view of the Mendlovic et al. reference in view of the Heller et al. reference, and further in view of the Bills reference.

Claim 5 depends from claim 1. Even assuming the combination of references is proper, which is not conceded, the Bills reference fails to provide the teachings noted above as missing from the combination of the Tanida et al. and Heller et al. references. Therefore, claim 5 are similarly believed to be allowable for at least the reasons set forth above in Section D. It is requested that this rejection be withdrawn.

H. Asserted Obviousness Rejection of Claims 7 and 14

In the outstanding Office Action Made Final, claims 7 and 14 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Tanida et al. reference in view of the Mendlovic et al. reference and further in view of the Meyers reference. Claim 7 depends from claim 1 and claim 14 depends from claim 12. Even assuming the combination of references is proper, which is not conceded, the Meyers reference fails to provide the teachings noted above as missing from the combination of the Tanida et al. and Heller et al. references. Therefore, these claims are similarly believed to be allowable for at least the reasons set forth above in Section D. It is requested that this rejection be withdrawn.

I. Asserted Obviousness Rejection of Claims 8, 20, 35, and 38

In the outstanding Office Action Made Final, claims 8, 20, 35, and 38 were rejected under 35 U.S.C. § 103(a) as being unpatentable over the Tanida et al. reference in view of the Mendlovic et al. reference in view of the Heller et al. reference, and further in view of the Examiner's Official Notice. Claims 8, 20, 35, and 28 depend from respective ones of claims 1 and 12. Therefore, these claims are similarly believed to be allowable for at least the reasons set forth above in Section D. It is requested that this rejection be withdrawn

J. Conclusion

The above remarks demonstrate failings of the Examiner's rationales for the outstanding rejections, and are sufficient to overcome the outstanding rejections. However, these remarks are not intended to, nor need they, comprehensively address each and every reason for the patentability of the claimed subject matter over the applied art. Accordingly, Applicants submit that the claims are allowable for reasons including, but not limited to, those set forth above, and patentability of the claims does not depend solely on the particular claim element discussed above.

If the Examiner believes that additional discussions or information might advance the prosecution of the instant application, the Examiner is invited to contact the undersigned at the telephone number listed below to expedite resolution of any outstanding issues.

In view of the foregoing amendments and remarks, reconsideration of this application is earnestly solicited, and an early and favorable further action upon all the claims is hereby requested.

Respectfully submitted,
LEE & MORSE, P.C.

Date: December 15, 2010


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Appendix:

Three (3) Replacement Drawing Sheets

Attachment:

Petition for two (2) month Extension of Time

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PETITION and
DEPOSIT ACCOUNT CHARGE AUTHORIZATION

This document and any concurrently filed papers are believed to be timely. Should any extension of the term be required, applicant hereby petitions the Director for such extension and requests that any applicable petition fee be charged to Deposit Account No. 50-1645.

If fee payment is enclosed, this amount is believed to be correct. However, the Director is hereby authorized to charge any deficiency or credit any overpayment to Deposit Account No. 50-1645.

Any additional fee(s) necessary to effect the proper and timely filing of the accompanying-papers may also be charged to Deposit Account No. 50-1645.